Computing

Year 9

Intent

The curriculum in year 9 aims to inspire programmers by showing exposing them to code that creates realistic apps that use a graphical interface to serve a purpose. Students will further embed the fundamentals of programming but will develop some more advanced techniques. Students will some of the fundamentals of computer science: how computers represent and manipulate data using the binary number system. They will be introduced to augmented reality software, understanding the role it can play and creating a small application.

	Programming (Sept to Nov)	**Website project (Nov to Feb)**	**Computer Science Fundamentals (Feb to May)**	**Graphics**
Knowledge (facts, information, concepts and key terminology)	• Some programs can be written to respond to events. • Subroutines can be run when events occur. • Data can be stored in structures called lists that can be manipulated. • Consolidation of selection and iteration structures.	• Know that HTML is the language of the web. • Know the fundamental tags used in HTML. • Understand how HTML is delivered to computers and rendered by a web browser.	• Know the place values in the binary number system • ASCII • Logic gates (AND, OR, XOR, NOT) • Memory is where data and instructions are held. • The CPU executes instructions in sequence.	• Know the difference between vector and bitmap graphics. • Know how a bitmap image is stored as binary code. • Know some of the properties of vector images.
Understanding (ability to connect and synthesise knowledge within a context)	• To be able to read small sections of code and successfully anticipate what will happen (predict, run and test)	Design a web page using a range of tools.	• To understand how computers use the binary number system to represent numbers and perform arithmetic and logic. • Explain how the fetch-decode-execute cycle works.	• Compare and contrast images stored as vectors and bitmaps. • Explain benefits of the different types of image.
Skills (successful application of knowledge and understanding to a specific task)	• Write sections of programs by editing code that has been provided.	Implement a design using HTML to create a webpage.	• To be able to convert between binary and decimal. • Add numbers use binary steps only. • Complete truth tables for basic logic circuits	• Create and edit bitmap images. • Use a range of tools to create and edit vector images.
Formal Assessments (those done by all/vast majority of the cohort)	Multiple-choice test at the end of the unit.	Teacher assessment of skills	Multiple-choice test at the end of the unit.	Multiple-choice test at the end of the unit.

By the end of the year students on course for at least a grade 5 will…

- Be able to anticipate what happens when small applications are run.
- Have awareness of how computers store and manipulate data using the binary alphabet.

- Be able to create a simple AR application.
- Explain how a bitmap image is represented in binary code.